City of Seattle

CASCADIA
REGION GREEN BUILDING COUNCIL

LEED FOR NEIGHBORHOOD DEVELOPMENT REGIONAL SUMMIT

Seattle City Hall
Bertha Landes Room
May 9, 2008

TABLE OF CONTENTS

Introduction

The City of Seattle and Cascadia Region Green Building Council partnered to host a full-day summit bringing together regional LEED for Neighborhood Development (LEED-ND) Pilot Project participants and policy makers to share challenges, best practices, and lessons learned using the LEED-ND Pilot rating system.

The Summit featured an update of the LEED-ND Pilot program; brief presentations by Pilot project representatives; discussion on lessons learned — both opportunities and challenges; and best practices for achieving LEED-ND credits. The afternoon included working group sessions and opportunities to leverage LEED-ND to inform public policy.

The Summit was intended to catalyze collaboration and change to push the market forward and encourage development of more sustainable neighborhoods. Within the region there are 22 LEED-ND Pilot projects: nine in Washington, five in Oregon, and eight in British Columbia (see Regional LEED-ND Pilot Projects table). Nine regional projects were represented. (See Appendix A for project descriptions and list of attendees.)

Regional LEED-ND Pilot Projects

Project Name	City	S/P	Acres
Garrison Crossing	Chilliwack	BC	160
Westhills Green Community	Langford	BC	470
Squamish Waterfront	Squamish	BC	13
Southeast False Creek Neighbourhood	Vancouver	BC	80
Wesbrook Place Neighbourhood Plan	Vancouver	BC	99
Dockside Green	Victoria	BC	15
Rainbow Hill	Victoria	BC	10
Whistler Athletes Village	Whistler	BC	89
Eliot Tower	Portland	OR	1
Helensview*	Portland	OR	5
Hoyt Yards	Portland	OR	34
Ladd Tower	Portland	OR	1
South Waterfront Central District	Portland	OR	35
Meadow Ridge Park	Bellingham	WA	45
New Whatcom Redevelopment Project	Bellingham	WA	228
Lacey Gateway Town Center	Lacey	WA	252
River District Village Center	Liberty Lake	WA	20
Interbay Neighborhood Master Plan	Seattle	WA	20
South Lake Union Urban Center	Seattle	WA	340
Thornton Place ND	Seattle	WA	5
Four Seasons Housing	Vancouver	WA	10
Washougal Blocks	Washougal	WA	3

LEED-ND Pilot Program Update

Eliot Allen, Criterion Planners, USGBC Pilot Program Consultant

A total of 238 projects were submitted and accepted to participate in the LEED-ND Pilot program. Of these, 205 are in the U.S., in 38 states, and 24 are located in Canada. The USGBC expects that some of these projects will be affected by the downturn in the economy, and the overall number of projects to complete the Pilot program will be less than the number accepted.

The USGBC is encouraging Pilot projects to submit for certification as early as possible, prior to the December 31, 2008 deadline, to better inform changes to the program and prepare for the non-pilot version to be rolled out in Summer 2009.

Data was presented that demonstrated the carbon benefits of LEED-ND. For example, LEED-ND encourages higher density and mixed-use development. Credits such as residential density, employment proximity, street density, transit proximity and auto use have significant impacts on lowering the carbon footprint of a neighborhood. Additionally, many LEED-ND credits improve a neighborhood's resiliency protecting against climate impacts — from credits that restore native habitat, providing ecosystem services such as flood prevention, to credits that encourage capital investments in green infrastructure.

Over 90% of LEED-ND Pilot projects are located within dense urban and suburban neighborhoods. Analysis was also conducted on densities of Pilot Projects and compared to census tract density where Pilot projects are located. In many cases, the Pilot Project densities are significantly higher than the average density within the census tract. For example, the density of persons per acre (population and employment) of a Pilot Project located in Portland, OR is 377 as compared to 300 per the census tract, a 126% increase in density. In Vancouver, WA the comparison is 24 persons per acre as compared to 8, a 300% increase.

The LEED-ND Committee is in the process of completing errata revisions to the rating system, and instructions that clarify the certification process. The LEED-ND Committee is currently addressing two challenges to Pilot Projects: 1) the need to streamline the documentation process and reduce documentation costs, and 2) evaluate requirements to ensure the rigor and integrity of the rating system. Based on the early certifications, Pilot Projects are achieving Silver and Gold ratings more easily than anticipated. The Committee will discuss options such as requiring a certain number of points from each category, limiting the size of projects that may apply, and strengthening the requirements of some credits. (See a copy of presentation in Appendix B.)

LESSONS LEARNED: OPPORTUNITIES

Public Policy

LEED-ND provides municipalities an opportunity to evaluate credits and performance metrics and inform public policy to encourage green, climate-friendly development. Policy changes may range from zoning and building code changes to incorporating practices in urban planning initiatives to investing in green infrastructure or incentives to encourage adoption of LEED-ND by the private sector.

For example, LEED-ND encourages innovation and use of alternative approaches by developers. Jurisdictions are often perceived as creating obstacles to innovation and alternative approaches not directly addressed within prescriptive code requirements. LEED-ND may provide an opportunity for jurisdictions to test newer approaches that support local, environmental and municipal goals. Jurisdictions may consider:

- Recognizing and rewarding innovation
- Allowing Pilot Projects to test innovative strategies and alternative approaches
- Creating a path for accepting new and different methods and materials
- Encouraging adoption by expediting or streamlining the permit process for LEED-ND projects
- Aligning local and State conservation incentive programs with LEED-ND to offer financial incentives
- Offering development incentives for LEED-ND projects such as higher transferred development rights or increased height or density
- Requiring LEED-ND certification for new development projects that meet predetermined criteria

Jurisdictions' support of green infrastructure strategies may be strengthened through the use of full-cost accounting principles. Full-cost accounting considers the financial, environmental, and community costs and benefits and can be assessed using an asset management system. For example, in some cases permeable paving may require higher maintenance costs. However, the higher maintenance costs may be offset by reduced stormwater and pollution prevention, and by creating new green jobs that contribute toward the local economy.

Jurisdictions may also be able to leverage LEED-ND to establish public/private partnerships with the goal of creating more compact and connected communities with a smaller environmental footprint.

Community Support

LEED-ND may be used as a tool to aid developers in the entitlement process. LEED-ND demonstrates to the neighborhood and community that the project will be environmentally responsible, designed with sensitivity to the existing character, and will add value and serve as an asset to the neighborhood. This may make density more attractive to neighbors and improve the public involvement process.

Encourage Higher Performance

LEED-ND can influence market transformation and better performance in specific areas important to the local community and conditions. For example, by adopting LEED-ND the developer of a participating project became more aware of social equity criteria such as affordable housing and pursued these credits to a greater degree than would have otherwise been the case. Another project formed a community group to research and start a new farmer's market. LEED-ND provided the impetus to explore the perceived obstacles and work more closely with the City and others to overcome the challenges.

LESSONS LEARNED: CHALLENGES

Participants discussed challenges of adopting LEED-ND as a neighborhood planning and design standard:

- **Relevance in Urban Context:** There are projects located in dense urban neighborhoods that consist of a single building, partial block or block that can achieve a Silver or Gold rating without significant effort. This is due to location and access to public transportation and amenities. Given the ease of achieving a LEED-ND certification, the program may discourage innovation in this context.
- **Defining Neighborhood Characteristics and Boundaries:** Pilot projects vary in size and characteristics that define the project as a neighborhood. For example, site size varies greatly. Some credits may be difficult to obtain with a very large site due to walking distances, while small sites may not meet the spirit of the program by representing a neighborhood.
- **Measuring Existing Conditions in Redevelopment Projects:** Data gathering and analysis for many credits may be difficult when a project is an urban infill or neighborhood redevelopment. These projects can have as many owners as parcels. Future versions may consider ways to streamline data gathering and analysis in these conditions. For example, relying on local building codes and/or public policies that stipulate performance for specific criteria.
- **Documentation Cost:** There is a perception that the certification cost is high. Criterion Planners estimated that projects may spend as much as 400 hours documenting performance in addition to the certification fee. Increased coordination between consultants to support an integrated design process can also increase project costs. The USGBC can overcome these concerns by demonstrating a strong business case for certifying neighborhoods. A web-based system to manage consultants and the documentation process may also alleviate concerns.

Meeting the Intent of Prerequisite and Credit Requirements: Specific prerequisites and credits pose challenges that may not be intended. For example, SLL Prerequisite 4: Wetlands and Water Body Conservation may better support wetland conservation efforts if the language and requirements were better aligned with the Army Corp of Engineers criteria to differentiate more valuable and less valuable wetlands and associated buffering requirements. Another example is the street design speed requirement in NPD Credit 7: Walkable Streets. The requirement effectively eliminates the opportunity for pedestrian-friendly neighborhoods in dense urban or suburban neighborhoods to achieve any of the eight possible points if the project has an arterial running through it. A last example is found in NPD Credit 3: Diversity of Housing Types. The Simpson Diversity Index may penalize a dense urban neighborhood that features multifamily housing and smaller units. An alternative requirement may consider the number of bedrooms as a criteria for determining the diversity of housing types.

Tools and Resources: Finding and accessing various standards that are referenced can be difficult for projects that do not have these resources in-house. Codes and standards can be expensive to purchase and maintain. The USGBC can provide better project support by providing a list of links to referenced standards or embedding links within the LEED-ND Reference Guide.

Three Stages of Submission Burdensome: It may be more cost efficient to separate the certification phases into design and construction categories, similar to LEED NC.

BREAK-OUT DISCUSSIONS

Two break-out groups were formed to discuss the opportunities, challenges and design strategies for two distinct project sites: urban redevelopment and Greenfield development.

Urban Redevelopment

Local governments can foster innovation in partnership with private sector developers through a number of strategies. First, local governments can demonstrate leading edge technologies such as green infrastructure by applying the principles of sustainability to planned capital investments for the neighborhood — or lead by example. Local governments can identify a champion to work with the developer and remove barriers or identify opportunities. Local governments can also form public / private partnership to achieve specific credits that require alternative delivery mechanisms.

LEED-ND can be leveraged to support municipal goals such as meeting climate action plan strategies to decrease in greenhouse gas emissions or supporting economic development strategies including green jobs initiatives. Local governments can encourage strategies that support municipal goals by creating incentives for developers that decrease costs, facilitate the entitlement process, or streamline the permit and review process.

Local governments and developers can gain community support by using education and involving community residents in the process. The framework of LEED-ND has the potential to make density and mixed uses more palatable to a wider variety of people, enabling municipalities and planners to strive for a higher level of green.

LEED-ND can be used as an additional tool in designing the urban environment. It encourages planners to look beyond their projects to the larger surrounding context, aiding in creating a larger impact on the environment. A holistic view of the neighborhood aids in identifying areas where components may be lacking. A truly green neighborhood requires a mix of uses to get people out of their cars, living and working and shopping in a walkable environment. LEED-ND has the potential to help planners create such a neighborhood, with the support of local governments and community support.

Greenfield/Rural Projects

The challenge of encouraging density while enhancing livability and quality of life.

LEED-ND can be utilized to help quantify the benefits, both financial and social, of green neighborhoods and buildings. As more entire neighborhoods are certified, data can be collected to show the benefits over conventional neighborhoods. The larger scale of neighborhood certification provides a wider array of data than, for example, the certification of a single building.

Smaller municipalities can leverage LEED-ND to require sustainable development. The program can be used as a framework for new developments. The opportunities for innovative technologies on a Greenfield site may be greater than with an urban site, and working closely together, all parties may be able to come up with a better solution. Approval of a proposed plan can be predicated on LEED-ND certification.

Communities can be improved when LEED-ND is used by a developer as a blueprint for neighborhood design. With the help of the municipality streamlining the approval process, developers have the incentive to spend more time and the ability to invest more on integrated and sustainable design strategies. The impartiality of third-party verification can help to assure communities that the development will be a benefit to them, further accelerating approvals and increasing potential environmental benefits as well.

Opportunities for LEED-ND Improvements

Participants recommended ways to improve LEED-ND or make it easier to document credits. Some of these items are already being addressed, some will need to be submitted in CIR form, and some will be submitted as comments to the USGBC as part of the public feedback for the Pilot Program.

Set a minimum and maximum project size. Whether it be a certain number of buildings or a site area requirement. Define what forms a neighborhood, and use those parameters to arrive at requirements for projects wishing to gain LEED-ND certification.

Look closely for unintended consequences of various prerequisites. For example, SLL P2 requiring wastewater treatment be available. There are proven systems in use that may be better for the environment than being on a standard system.

Consider regional conditions. High snowfall areas need to accommodate snowplows in the street design. Developments in the desert southwest may not want to universally arrange

buildings to catch the sun. Encourage alternative methods of meeting the intent of the credit while acknowledging the differences between local and regional conditions.

Require a balanced distribution of credits across the three categories. Each category is equally important in the creation of an environmentally friendly neighborhood and strengthens community by enhancing livability and quality of life.

There are at least two distinctive project types: urban redevelopment sites in an existing high-density urban fabric, and Greenfield or suburban/rural sites. Consider different 'tracks' for certification, depending on these conditions.

Recognize local or regional residential green building programs in GCT Credit 1 for certified green buildings. Many communities have developed their own residential green building program, such as Seattle's Built Green™ program. These programs are often regionally appropriate and already well known and in use. Change language to recognize these programs and provide credit for buildings certified under them.

Create a more streamlined process for filling out templates. Many credits could be calculated directly from one comprehensive project spreadsheet linked to various spreadsheets, rather than individually.

Additional issues brought by individual projects also included:

The USGBC could use their influence to aid in amending water rights regulations in order to allow rainwater harvesting in the western states that currently do not allow it.

The threshold to achieve the district energy credit is very high – more projects may choose to attempt this credit if there were a wider range of points available. This is arguably a very beneficial credit, and should be encouraged at any scale.

The potential for climate change/sea level rise is not addressed anywhere.

Consider that a true net zero development is likely to be less dense than we usually consider as 'good'. Land area is required to harvest sun, water, grow food, etc.

Consider an Arts and Culture component in the rating system.

Raise awareness about ecosystem services and natural capital by establishing a credit that rewards an assessment of and conservation strategies for ecosystem services.

APPENDIX A

Regional LEED-ND Summit Project summary reports by project representatives

South Lake Union Urban Center in Seattle, WA

Presented by Lynne Barker, City of Seattle

Project Boundary

The South Lake Union Urban Center is projected to assume a significant amount of growth in jobs and housing in the next 20 years. The Urban Center is adjacent to Seattle's downtown core, and has good access to public transit with a streetcar and metro buses that link the neighborhood to downtown and other City neighborhoods. The neighborhood encouraged the City to develop a new zoning designation called the Seattle Mixed Zone for South Lake Union to encourage mixed–use development. Planned neighborhood features include bike lanes and infrastructure; street improvements to improve the traffic flow from I-5 and Highway 99 through the neighborhood that feature landscaped medians and other pedestrian safety and traffic calming strategies; two new parks, two green infrastructure projects to handle stormwater runoff. The neighborhood is previously developed and over 100 years old. The City and neighborhood groups and businesses are partnering on the LEED-ND Pilot project to evaluate how a Seattle Urban Center performs against the LEED-ND standard. Through the Pilot, the City will evaluate LEED-ND credits against neighborhood and City policies and priorities to assess relevance and opportunities to leverage LEED-ND to influence public policy.

River District Village Center Project in Liberty Lake, WA

Presented by Mike Terrell, Greenstone Homes

The River District Village Center Project in Liberty Lake is located 10-15 miles east of Spokane and close to the Idaho border. The project is a Greenfield site located on top of a sole source aquifer. The aquifer limits natural infiltration options. Previously, the site was agricultural land and was a tough area to farm as it is mostly gravel and very porous soils. One unique aspect of the project is that it encompasses several miles of the Centennial Trail. Liberty Lake was incorporated six years ago with a population of 6,000, and no downtown center. The project is planning a village center to create a sense of place. The LEED-ND portion of the project is 20 acres located within a greater planned area of 700 acres. The area was limited due to an anticipated increase in cost for LEED-ND certification. The existing wastewater treatment plant adjacent to the site releases effluent into the Spokane River. The project plans to reduce the amount of effluent entering the river by installing a water reuse system for the LEED-ND portion of the project, and potentially for the entire 700 acres. One advantage of a Greenfield site over an urban setting is the reduced cost for installing a water reuse pipe system.

Meadow Ridge Park in Bellingham, WA

Presented by Catherine Benotto, Weber Thompson

Meadow Ridge Park is currently on hold due to the downturn in the economy. The 42-acre project is located just north of Sunset Mall Shopping District adjacent to I-5. It underwent a rezone to allow for higher density development, including: townhomes, multi-family and mixed-use development. The development is intended to be a legacy project for the owners who felt that green development reflected the values of Bellingham's residents. The owners hired 2020 Engineering to design low-impact stormwater strategies that may include using pervious pavement on roads in alleys and storm detention under roads and pin pile foundations to replace conventional detention ponds. The first phase of this project (30 single family homes and a 50 unit multifamily building) has been submitted to the City for Planned Development and Design Review approval. The remainder of the site is on hold pending financing and a market study. With an open minded customer, the City may reward to the project by expediting the review process instead of having the developer go through an overly complicated and long entitlement process to gain approval for unconventional strategies.

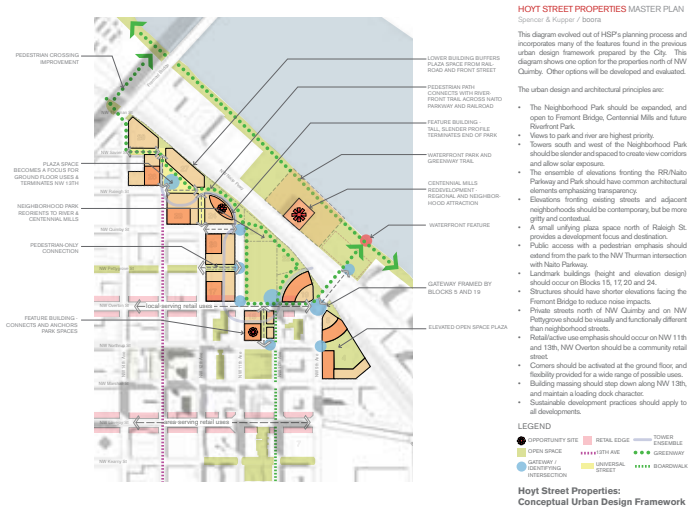
Sweetwater Project in Hailey, ID

Presented by Ginger Garff, Weber Thompson

The Sweetwater project has 421 housing units on 22 acres. A majority of the units are workforce housing and are intended to provide affordable housing to workers in Sun Valley. There are a variety of housing types — from townhouses to carriage house to condominiums. It was designed with a strong focus on the pedestrian — most parking is located off of rear alleyways, virtually eliminating driveways on the streetscape. Residential units are sited to face the street with front porches, or are arranged around small public green spaces. There is a small mixed-use component, as well as a number of live/work units. The site is directly adjacent to a 20+ mile bicycle/multi-use trail. The project will manage 100% of stormwater through on-site infiltration. The City of Hailey is long and narrow due to its location in a valley creating a challenge to achieve distance-to-services credits. Street design was also challenging due to the need to accommodate snow removal equipment and snow storage.

Hoyt Yards in Portland, OR

Presented by Sarah Heinicke, Brightworks and Doug Shapiro, Hoyt Street Properties



Hoyt Yards is a contaminated former rail yard and brownfield site. Of the 13 acres, half have been redeveloped. Future developments will include a very large green space. The developer donated land to the local parks department for the development of and interior park concept that moves through the neighborhood, beginning as an urban plaza park and then ending in a wide green active space linking to a green river space. The project is conducting the feasibility of using a district energy system that would extend to adjacent projects. There are eight building sites left for development. They were instrumental in implementing the streetcar into this area — where it didn't go before. The project is working with two different energy districts to see which can provide them with what they need first. One point on the checklist for district energy use does not seem adequate, given how difficult and beneficial this is to achieve. The amount of work that goes into setting this up is very time consuming. Good management of base systems is important.

Lacey Gateway Town Center in Lacey, WA

Presented by Erin Christensen, Mithun

Lacey Gateway Town Center is a 250 acre site. The family-owned developer will develop the site as a legacy that gives back to the City of Lacey. The site is located north of I-5 and considered a Greenfield site. A bus line is within close proximity of the site, and there may be an opportunity to locate a Park and Ride with the site. The project features a commercial and retail town center with 2,500 dwelling units — a good mix of commercial and residential development. A green spine will run through the site that incorporates multi-modal transit trails and public amenities. The project is in the SEIS entitlement phase.

Thornton Place in Seattle WA

Presented by Erin Christensen, Mithun

Thornton Place is a 4.7 acre mixed-use development. Adjacent to the site is a 125-unit senior housing project, new community center, library, and park, as well as the Northgate Mall and a bus transit Park and Ride. The property acquisition entailed a land swap with Seattle Public Utilities, who is developing a public park and partial restoration of Thornton Creek as part of the project. The development will feature 270 apartments and 220 condos. The density at 82 dwelling units per acre integrates well within the existing community, which is one of Seattle's six Urban Centers.

New Whatcom Development in Bellingham, WA

Presented by Sylvia Goodwin, Port of Bellingham

Site is 220 acres located in downtown Bellingham at the old Georgia Pacific paper mill site, and has been in industrial use since 1930. The entire site is on contaminated fill. The idea for redevelopment started during a waterfront clean up project. It was recommended that the site be put back into public use. The Port owns most of the land and is working with the City and Sustainable Connections to redevelop this as a mixed-use project with light industrial uses related to marine trades, residential units, and public access to shoreline while maintaining the marine waterways. Green features will include public and bike transit, shoreline habitat restoration, and stormwater management. There is a shared central heating system planned and reuse of water within existing buildings. The Port and City are collaborating on the master plan. The project is aiming for a LEED-ND Gold rating. Many of the existing buildings may not be able to be reused because they are below the anticipated finish grade. Materials from existing buildings will be reused on other portions of the site, including reclaimed bricks and timbers. The Port is developing a new standard for environmentally responsible marina development and will submit this as an innovation credit. The standards will consider space needs for boats, revenue generation, public access and parks, and habitat restoration features. The project will restore 35 acres of aquatic habitat for salmon.

Rainbow Hill in Victoria, Vancouver Island, BC

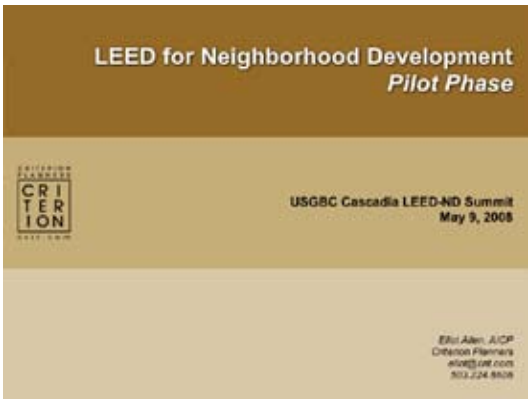
Presented by Julie Brown, D'Ambrosio Architecture + Urbanism

Rainbow Hill is a 9.5 acre site on a hillside near a major highway interchange. It was previously used for small acre farming, residential, and gravel extraction. The site contains an existing fragmented Garry Oak meadow. Arborists and landscape architects are charged with conserving and restoring the natural habitat. The plan is for 12 single-family lots, 27 townhomes, and 64 condominium units in two buildings. It has been approved by the municipality contingent upon LEED-ND certification, with the additional stipulation that the condominium buildings must achieve LEED-NC certification. The surrounding area is a low density residential neighborhood. The site is directly adjacent to a school and church with a number of bus routes close by.

Regional Summit of LEED-ND pilot projects

	First Name	Last Name	Email	Project
	Sarah	Heinicke	sarah@brightworks.net	Hoyt Yards
	Doug	Shapiro	dougs@hoytstreetproperties.com	Hoyt Yards
	Elizabeth	Tonsmeire	elizabeth@brightworks.net	Hoyt Yards
	Erin	Christensen	erinc@mithun.com	Lacey Gateway Town Center
	Catherine	Benotto	cbenotto@weberthompson.com	Meadow Ridge Park
	Ginger	Garff	ggarff@weberthompson.com	Meadow Ridge Park
	Steve	Sundin	ssundin@cob.org	Meadow Ridge Park
	Sylvia	Goodwin	sylviag@portofbellingham.com	New Whatcom Redevelopment Project
	Nick	Hartrich	nick@sconnect.org	New Whatcom Redevelopment Project
	Mike	Hogan	mikeh@portofbellingham.com	New Whatcom Redevelopment Project
	L W	Johnson	ljohnson@cob.org	New Whatcom Redevelopment Project
	Derek	Long	derek@sconnect.org	New Whatcom Redevelopment Project
	Brenda	Tate	brendat@portofbellingham.com	New Whatcom Redevelopment Project
	Eliot	Allen	eliot@crit.com	Pilot Consultant - Application Review
	Julie	Brown	jbrown@fdarc.ca	Rainbow Hill
	Tori	Feldman	cheenaht@tellus.net	Rainbow Hill
	Mike	Terrell	mterrell@greenstonehomes.com	River District Village Center
	Lynne	Barker	lynne.barker@seattle.gov	South Lake Union
	Liz	Birkholz	lbirkholz@nbbj.com	South Lake Union
	Jim	Holmes	jim.holmes@seattle.gov	South Lake Union
	Nora	Daley-Peng	nora@obrienandco.com	Thorton Place
	Matt	Holzemer	mholzemer@lorig.com	Thorton Place
	Liz	Stenning	liz@obrienandco.com	Thorton Place
	Jayson	Antonoff	jayson.antonoff@seattle.gov	
	Lucia	Athens	lucia.athens@seattle.gov	
	Joel	Banslaben	joel.banslaben@seattle.gov	
	Peter	Dobrovolny	peter.dobrovolny@seattle.gov	
	Dan	Farrell	dan.farrell@kingcounty.gov	
	Paul	Fleming	paul.fleming@seattle.gov	
	Rachael	Jamison	rjam461@ecy.wa.gov	
	Sandra	Mallory	sandra.mallory@seattle.gov	
	Jason	McLennan	jason@cascadiagbc.org	
	Sati	Mookherjee	sati.mookherjee@gmail.com	
	Angie	Morgan	angie@cascadiagbc.org	
	Jim	Soules	jim@soulescompany.com	
	Patti	Southard	patti.southard@kingcounty.gov	

APPENDIX B



LEED for Neighborhood Development
Pilot Phase

USGBC Cascadia LEED-ND Summit
May 9, 2008

Eliot Allen, AIGP
Criterior Planners
eliot@crit.com
(503) 224 8606

LEED for Neighborhood Development
Pilot Phase

CRITERION PLANNERS
CRITERION
crit.com

USGBC Cascadia LEED-ND Summit
May 9, 2008

Eliot Allen, AICP
Criterion Planners
eliot@crit.com
503.224.8606

LEED for Neighborhood Development Rating System

Yes

Regional accessibility
Infill
Use mix
Brownfield reuse
Jobs/housing proximity
School proximity
Transit service
Biking network

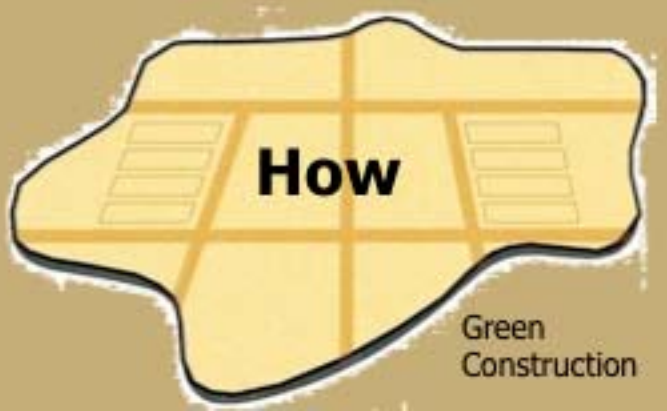
No

Wetlands disturbance
Agricultural land conversion
Floodplains encroachment
Sensitive habitat loss
Steep slopes development

Density
Use mix
Housing mix/affordability
Walkability
Transit service
Parks
Local food
Universal access

Gated streets

Energy/water efficiency
Building reuse
Historic preservation
Stormwater mgmt.
Solar orientation
On-site renewables
Wastewater reuse
Recycling



Construction pollution
Light pollution
Heat islands

Location of Pilot Projects

- 205 projects in 39 states and D.C.
- 33 projects in 5 other countries

Pilot Project Locations

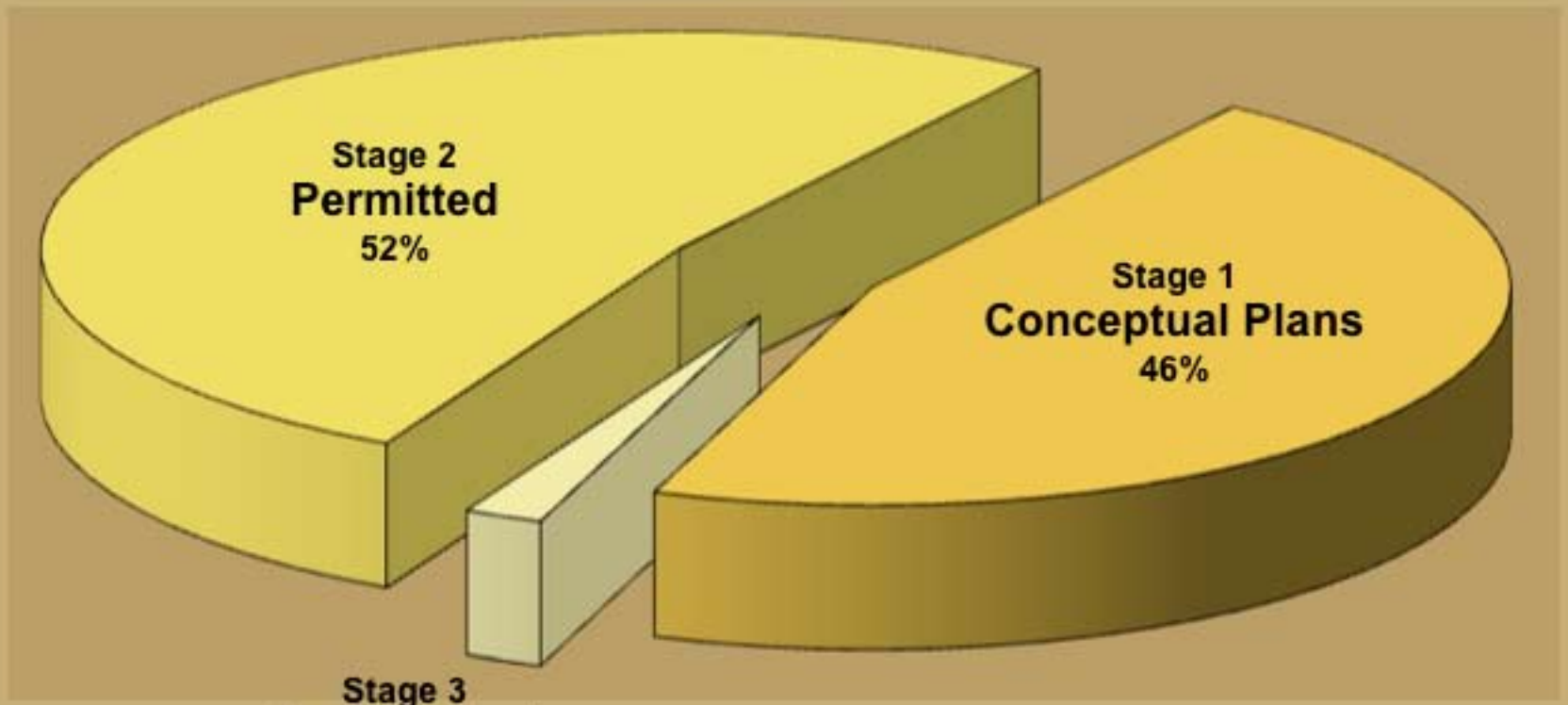
Projects by Country	
United States	205
Canada	24
China	6
Bahamas	1
South Korea	1
Mexico	1
Total	**238**

Projects by State	
CA	45
DC	10
VA	10
NY	9
OH	9
WA	9
CO	8
IL	7
CT	6
FL	6
ID	6
MA	6
MD	5
OR	5
PA	5
UT	5
WI	5
GA	4
HI	4
NC	4
NJ	4
TN	4
TX	4
AZ	3
NM	3
SC	3
AR	2
MN	2
MT	2
IN	1
LA	1
MI	1
MO	1
MS	1
NE	1
NH	1
NV	1
RI	1
SD	1
Total	**205**

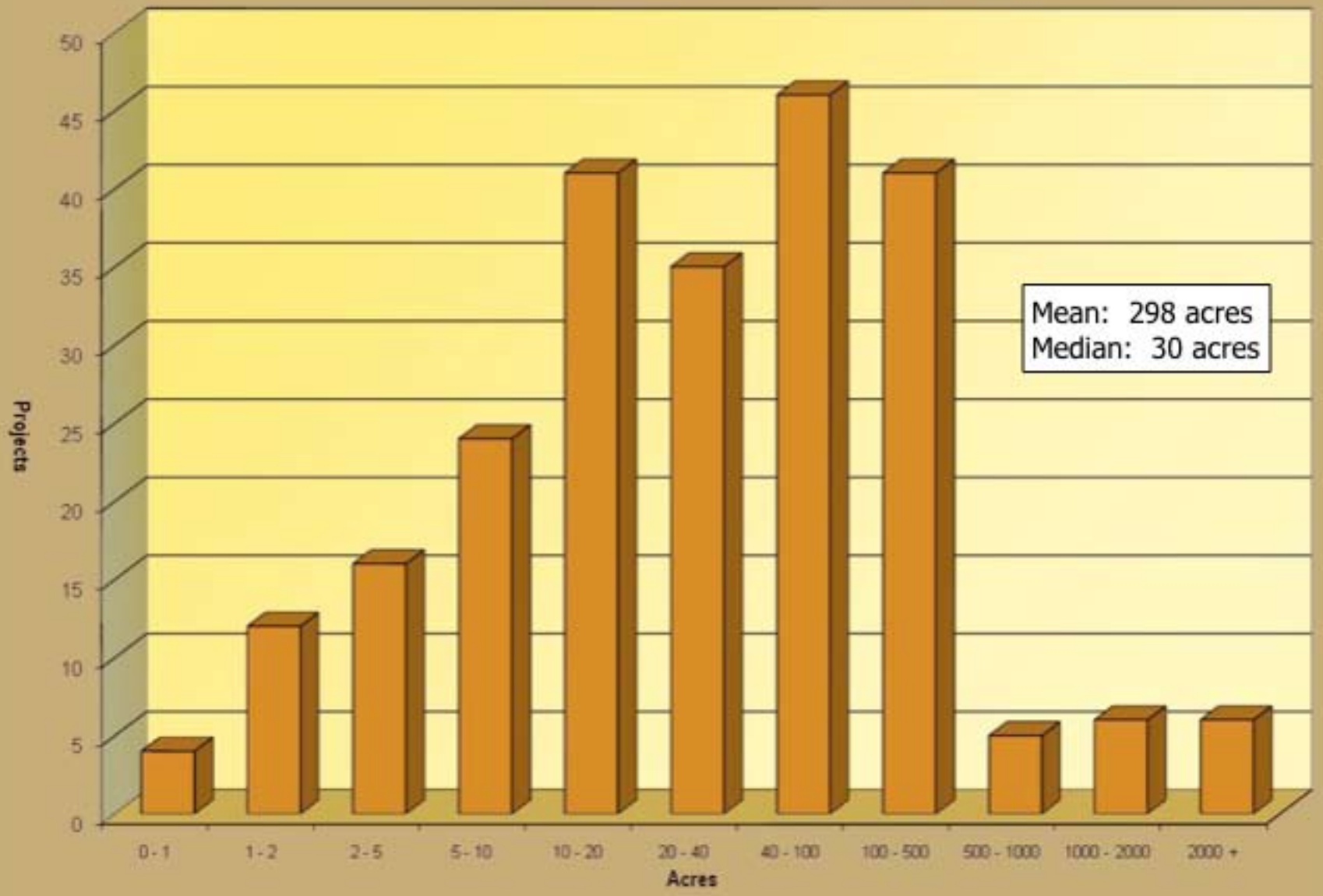
Cities With Multiple Projects	
Washington	10
Los Angeles	5
Portland	5
Oakland	4
Sacramento	4
San Francisco	3
Denver	3
Cleveland	3
Seattle	3
Milwaukee	3
Fayetteville	2
Tucson	2
Irvine	2
San Diego	2
Stamford, CT	2
Atlanta	2
Baltimore	2
Boston	2
Bozeman	2
Chicago	2
Santa Fe	2
New York	2
Oakmont, PA	2
Pittsburgh	2
Nashville	2
Salt Lake City	2
Arlington	2
Fort Belvoir, VA	2
Bellingham	2
Total	**81**

Zip Codes With Multiple Projects			
02119	Boston	MA	2
15139	Oakmont	PA	2
20002	Washington	DC	2
20003	Washington	DC	2
20011	Washington	DC	2
22060	Fort Belvoir	VA	2
29405	Charleston	SC	2
37203	Nashville	TN	2
59715	Bozeman	MT	2
92618	Irvine	CA	2
		Total	**20**

Pilot Projects by Stage



Pilot Projects by Land Area

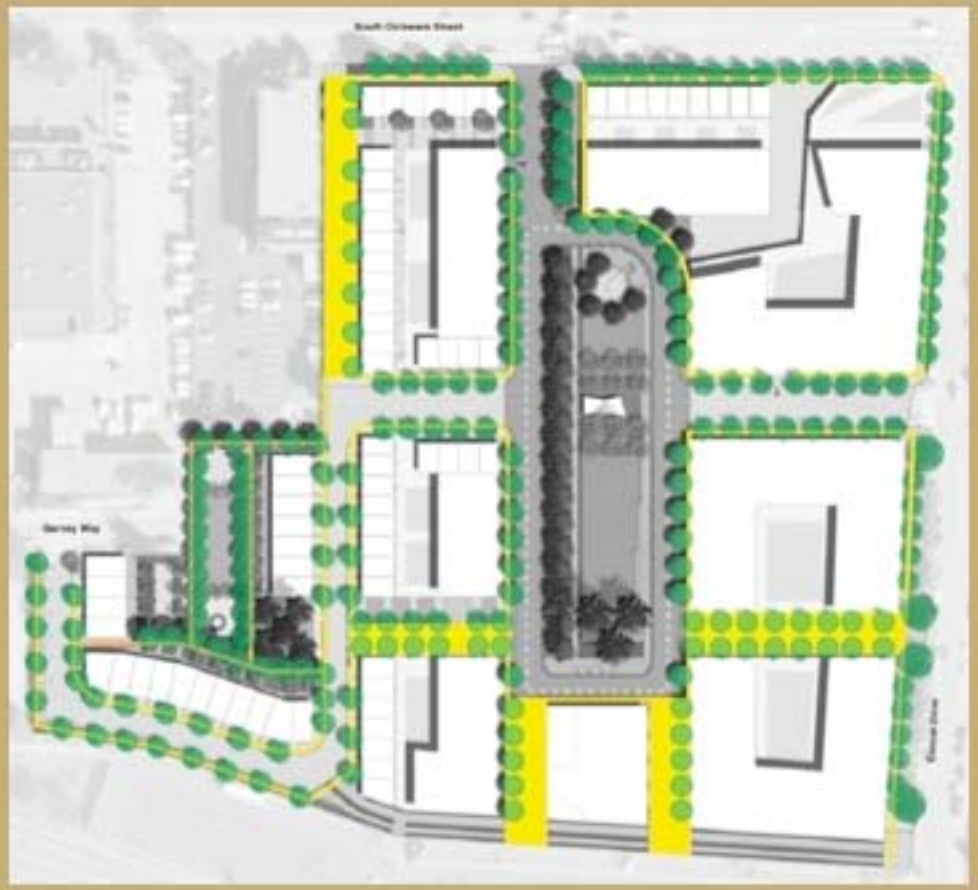


Certification Processing to Date

Pending preliminaries: 7

Pending finals: 6

Certifications: 4



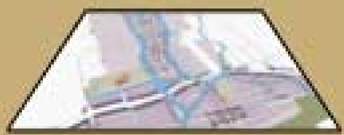
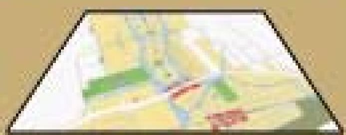
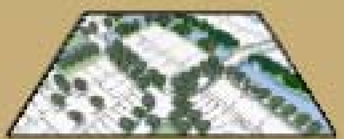
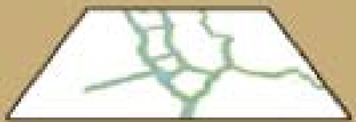
Station Park Green
San Mateo, CA

Neighborhoods and CO_2

Suburban
8 DU/acre
0.25 FAR

Urban
40 DU/acre
2.5 FAR

Climate Change Features of LEED for Neighborhood Dev.

	Neighborhood Features	CO_2 Reductions
	Regional accessibility	Transportation efficiencies
	Multi-modal travel	Transportation efficiencies
	High-density land-uses	Space conditioning reduction; transportation savings
	Mixed land-uses	Peak load diversity; transportation savings
	Building siting/solar orientation/heat islands	Space conditioning reduction
	District heating & cooling	Space conditioning/water heating efficiencies
	Distributed clean power generation	Reduced generation emissions

Prereqs & Credits with Climate Change Effects

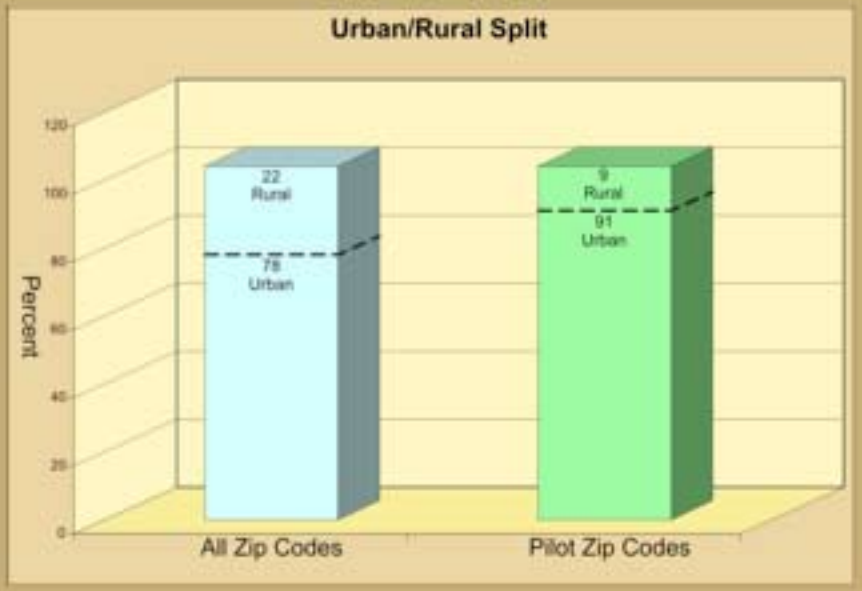
Prereqs & Credits *Continued*

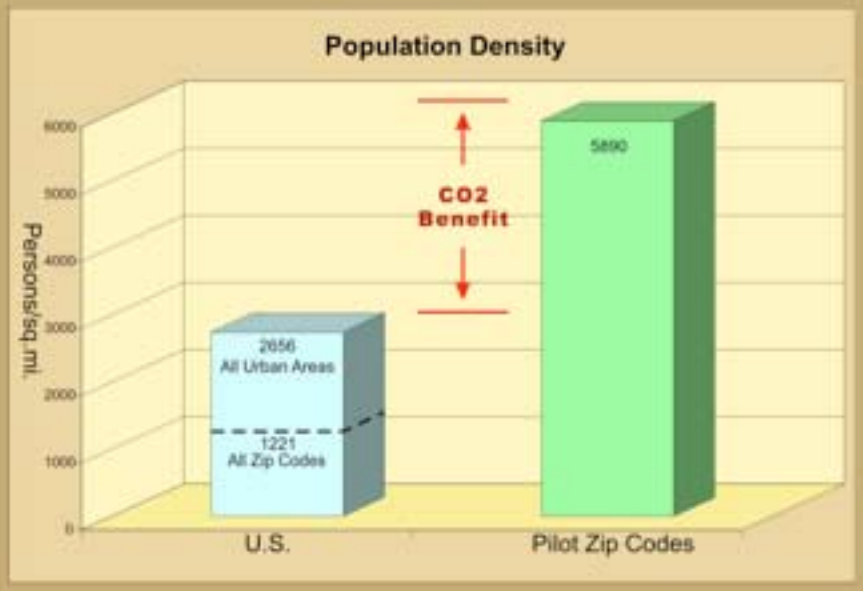
Prereqs & Credits *Continued*

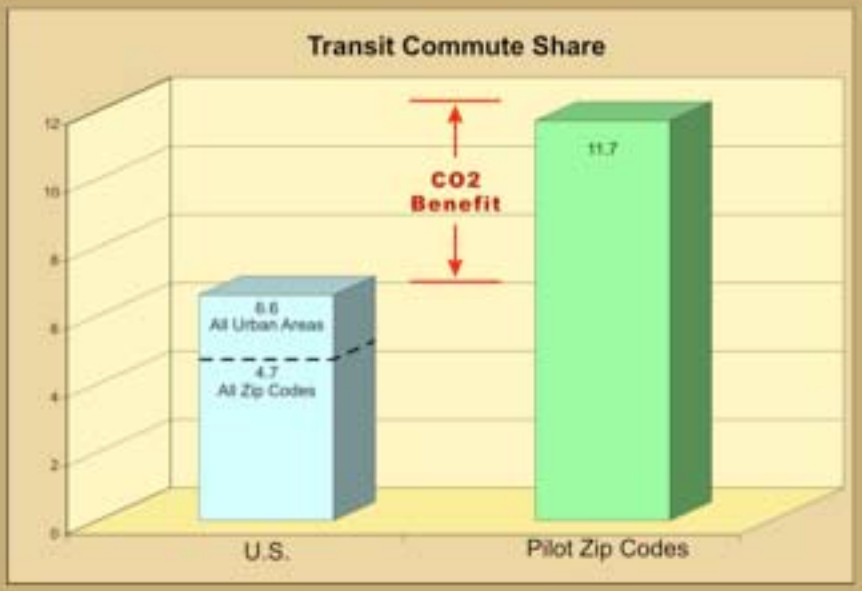
Adaptation

Prerequisites & Credits	Resilience Effects
Smart Location & Linkage	
SLL Prerequisite 3: Imperiled Species and Ecological Communities	Strengthened habitat
SLL Prerequisite 4: Wetland and Water Body Conservation	Wave energy/flood water absorption
SLL Prerequisite 6: Floodplain Avoidance	Reduced development exposure
SLL Credit 9: Site Design for Habitat or Wetland Conservation	Strengthened habitat
SLL Credit 10: Restoration of Habitat or Wetlands	Strengthened habitat/tides and surge absorption
SLL Credit 11: Conservation Management of Habitat or Wetlands	Strengthened habitat/tides and surge absorption
Green Construction & Technology	
GCT Credit 9: Stormwater Management	Strengthened capacity for fluctuations/surges
Innovation & Design Process	
ID Credit 1: Innovation and Exemplary Performance	Exemplary performance in any of the above other resilience ideas

Pilot Projects by Surrounding Location & Travel Patterns







Pilot Densities Vs. Surrounding Vicinities

Pilot	Location	Pilot Persons/Acre (pop & emp)	Census Tract Persons/Acre (pop & emp)	Pilot Density as % Census Tract Density
A	San Diego, CA	86	18	477
B	Portland, OR	377	300	126
C	San Mateo, CA	108	23	470
D	Vancouver, WA	24	8	300
E	Emeryville, CA	400	36	1,111
F	Portland, OR	40	11	333
G	Park City, UT	34	2	1,700
H	Orange, CA	36	23	157

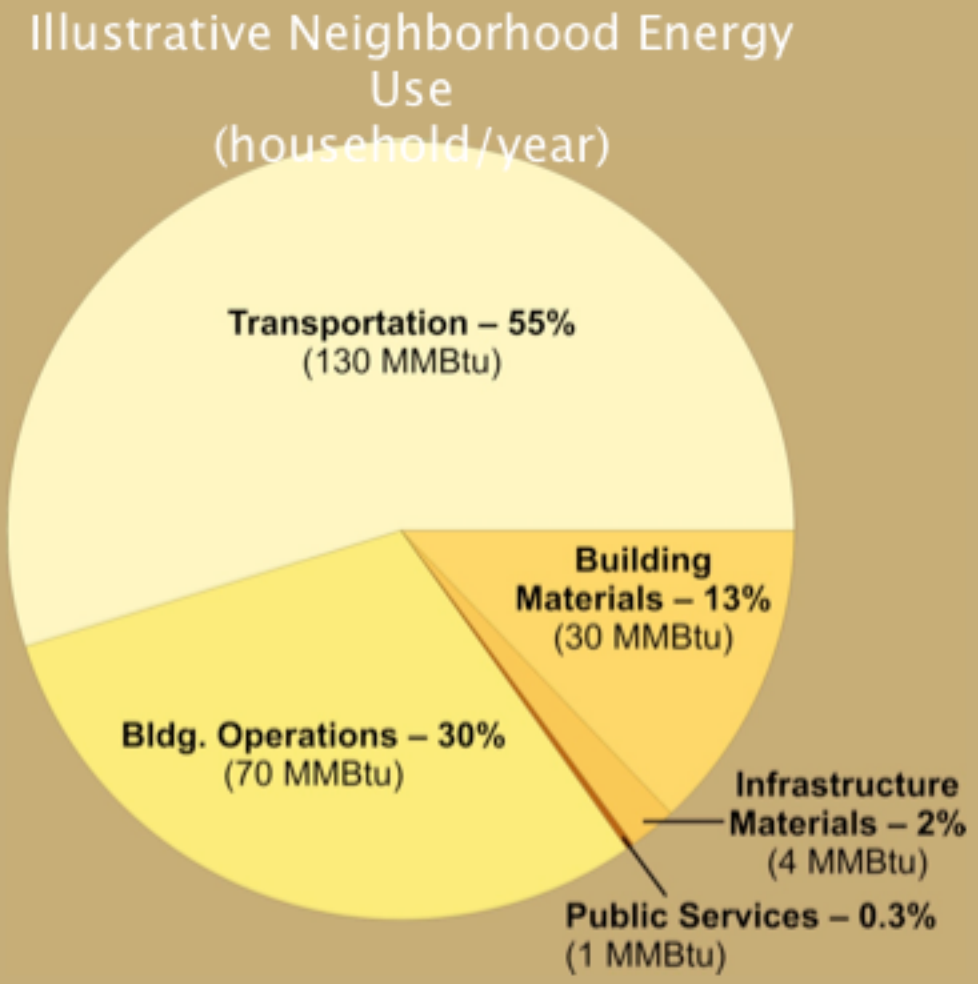
Climate Change Credits Applied to Lafayette, CA

Actions	Credits	CO2 Reduction Targets C % Downtown Emissions by End-Use				
		Buildings				
		Space Conditioning	Water Heating	Power	Transportation Fuels	Infrastructure Power
Buildings						
LEED certification	GCTc1	10	10	10		
Solar thermal	GCTc11, c12, c13		5			
Solar power	GCTc11, c12, c13			5		5
Land-use density	NPDc1	5			3	
Land-use mix	NPDc2	5	2		3	
Increased housing	SLLc6	3			5	
District cooling/cogen	GCTc14	5	5	5		
Heat island reduction	GCTc10	2				
Transportation						
Pedestrian facilities	NPDc7				2	
Bicycle facilities	SLLc5				2	
Transit service	SLLc4				2	
Parking management	NPDc10				2	
Infrastructure						
Lighting/pumping efficiency	GCTc15					10
	Total	30	22	20	19	15

Climate Change Credits Applied to Tampa, FL

Actions	Credits	INDEX Indicator Units	Existing Conditions	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Population Density	NPDc1	residents/gross acre	7.07	11.84	15.17	19.54	19.64
Use Mix	NPDc2	0-1 scale	0.37	0.44	0.50	0.54	0.54
Development Footprint	GCTc9	net acres/1000 residents	95.1	57.1	44.1	33.9	33.6
Dwelling Density	NPDc1	DU/gross acre	3.00	5.02	6.43	8.28	8.32
Amenities Proximity	NPDc2	avg walk ft to closest grocery	1,244	979	934	975	875
Transit Proximity to Housing	SLLc4	avg walk ft to closest stop	622	509	479	483	453
Jobs to Housing Balance	SLLc6	jobs/DU	1.48	1.05	1.31	1.27	1.37
Employment Density	NPDc1	emps/net acre	21.44	26.62	35.46	41.91	40.89
Transit Proximity to Employment	SLLc4	avg walk ft to closest stop	553	523	458	480	442
Park/School Space Supply	NPDc12, NPDc13	acres/1000 persons	3.8	2.5	2.0	1.5	1.5
Park/School Proximity to Housing	SLLc7, SPDc12	avg walk ft to closest park/school	1,306	978	921	893	880
Home Based Vehicle Miles Traveled	SLLc4	mi/day/capita	18.0	14.9	14.2	13.8	13.6
Carbon Dioxide Emissions	**N/A**	**lbs/capita/yr from HB VMT**	**8,395**	**6,933**	**6,644**	**6,415**	**6,361**

Potential LEED for Neighborhood Dev. CO_2 Savings



Potential LEED Savings		Household/Year MMBtu	Household/Year CO_2 lbs
Transp.	25%	33	5,000
Bldg. Ops.	33%	23	3,000
Materials	10%	3	400
		59	8,400

Conceptual LEED Carbon Transect

	High Carbon	Low Carbon
Community Design		
Residential Density (net DU/ac)	0.10	35
Employment Proximity (jobs w/i 1 mi.)	10	30,000
Street Density (centerline mi./sq.mi)	1	25
Transit Proximity (avg. ft. DU-closest stop)	25,000	400
Auto Use (VMT/capita/day)	35	10
Carbon Performance		
Energy Use (MMBtu/capita/yr)	230	75
CO_2 Emissions (tons/capita/yr)	12	4

Going Forward